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EXAMINER

BARRERA, RAMON M

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/591,086
Filing Date: August 29, 2006
Appellant(s): RIES, GUENTER

James E. Howard
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 29, 2009 appealing from the Office action mailed August 31, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US2003/0173834	McGill et al.	9-2003
JP2000-253640	Hitoo et al.	9-2000
JP2000-224829	Hitoo	8-2000
EP0915553A2	Huth	5-1999

(9) Grounds of Rejection

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitoo(JP2000-253640), et al., cited on applicant's IDS.

Hitoo in figs. 2 and 7 disclosed a linear drive device comprising an excitation winding (3,14) producing a variable magnetic field and including an associated magnetic-flux-carrying main yoke body (2,12) having pole surfaces having multiple and a center limb; a winding-free counter yoke body; an axial gap formed between the main and counter-yoke bodies; an armature body (4,22) including a magnet carrier having at least two permanent magnet parts (24,26) and an axial oscillation movement being transferable to the at least two permanent magnet parts by the variable magnetic field of the excitation winding.

Claims 14, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hitoo (JP2000-224829), et al., cited on applicant's IDS.

Hitoo in figs. 4-7 disclosed a linear drive device comprising an excitation winding 14 producing a variable magnetic field and including an associated magnetic-flux-carrying main yoke body 12 having pole surfaces having multiple and a

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center limb; a winding-free counter yoke body; an axial gap formed between the main and counter-yoke bodies; an armature body 20 including a magnet carrier having at least two permanent magnet parts (20a,20b) and an axial oscillation movement being transferable to the at least two permanent magnet parts by the variable magnetic field of the excitation winding. Figs. 4-6 disclose embodiments where the armature stroke is confined by counter yoke legs 16(a,b) to a distance substantially the same as the pole surface width dimension of at least one pole surface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitoo(JP2000-253640), cited above, in view of Huth(EP0915553), cited on applicant's IDS.

Hitoo disclosed the claimed invention except for pole shoes on the respective limbs. Huth disclosed a linear motor with pole shoes, an equivalent structure known in the art. Therefore, because these two pole structures were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to employ pole shoes on Hitoo's main yoke limbs as taught by Huth.

Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitoo(JP2000-253640), cited above, in view of McGill, et al.(US2003/017384), newly cited.

Hitoo disclosed the claimed invention except for wherein the armature body is rigidly connected to a pump plunger of a compressor. McGill, et al., disclosed a similar actuator having an armature body connected to a pump plunger 11 of a compressor. Therefore, because these two actuators were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to connect a pump plunger of a compressor to Hitoo's armature.

(10) Response to Argument

Claims 14, 18, and 20 are patentable under 35 U.S.C. § 102(b) over the JP2000-253640 reference.

Applicant alleges fig. 7 in JP2000-253640 does not disclose a pole surface width dimension of each of the alleged multiple limbs 2a being substantially the same, as recited in claim 14 because the JP2000-253640 reference does not state that the drawings are drawn to scale and that the width of the central limb 2a clearly is larger than the width of the outer limbs. Applicant also alleges the JP2000-253640 reference fails to disclose or suggest the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, as recited by independent claim 14.

In response, it is noted that page 2 of Applicants' specification discloses a range of +/- 10% for the sum of the pole surface width dimension and the pole surface spacing dimension, and that the claimed terms "substantially" and "approximately" are relative terms open to broad interpretation. Furthermore, although the Examiner agrees the disclosure of the JP2000-253640 reference is silent with regards to the pole surface width dimension of each yoke limb 2a being substantially the same or that the magnet axial extension dimension of each magnet part being approximately equal to the sum of the pole surface width dimension and the pole surface spacing dimension, it is asserted that these two conditions represent an optimized magnetic circuit design inherent in the reference. I have attached a diagram explaining the magnetic forces acting on the

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armature where Fig. A represents the beginning and fig. B the end of a rightward stroke. Fig. C represents the beginning of a left armature stroke when the current in the coil is reversed. Fig. D represents the forces acting on the armature at the beginning of a right side stroke where the magnet axial extension dimension of each magnet part is less than the sum of the pole surface width dimension and the pole surface spacing dimension. The magnetic circuit in Fig. D will not function to accelerate the armature to the right.

Claims 14 and 18-20 are patentable under 35 U.S.C. § 102(b) over the JP2000-224829 reference.

The examiner's response to applicant's similar arguments towards claims 14, 18, and 20 are supplied above in connection with the JP2000-253640 reference. With regards to claim 19, applicant asserts the JP2000-224829 reference does not teach or suggest "the pole surface width dimension of at least one pole surface is substantially the same as the stroke distance of the armature body during the oscillating movement".

In response, "the pole surface width dimension of at least one pole surface is substantially the same as the stroke distance of the armature body during the oscillating movement" represents optimization of the magnetic circuit. With reference to attached Figs. A-C it is noted that exceeding this stroke distance results in the armature overrunning the yoke resulting in reduced stroke force at the extremities.

Claims 15 and 16 are patentable under 35 U.S.C. § 103(a) over the JP2000-253640 reference in view of the Huth reference (EP 0915553)

Applicant asserts the examiner has failed to make a prima facie case for the obviousness of providing the pole shoes that are disclosed by the Huth reference to the limbs of the JP2000-253640 reference because the Office Action fails to provide an adequate rationale for combining the prior art.

In response, a motivation for the combination is inherent in Huth, i.e., pole shoes enable the secure retention of the coil on the core limb which would otherwise be subject to displacement due to gravitational force and/or vibrations of the mechanism.

Claim 21 is patentable under 35 U.S.C. § 103(a) over the JP2000- 253640 reference in view of the McGill et al. reference (US 2003/017384)

Appellant has not presented an argument in support of the separate patentability of claim 21 and is therefore deemed to rise or fall together with the patentability of its parent claim 14. However, on page 5, paragraph 3, of an English translation of JP2000—253640, which was obtained after a final rejection of the application, it is indicated that the armature body may drive a reciprocating-type compressor, by reciprocating motion of the armature being transmitted to a piston.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Ramon M Barrera/

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T-QAS TC 2800